

Environmental Studies

LOOKING AROUND

Textbook for Class V



0529



राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

ISBN 978-81-7450-826-3

First Edition

March 2008 Chaitra 1929

Reprint Edition

February 2009 Phalgun 1930

January 2010 Magha 1931

November 2010 Kartika, 1932

January 2012 Magha 1933

March 2013 Phalgun 1934

November 2013 Kartika 1935

December 2014 Pausa 1936

November 2017 Agrahayana 1939

December 2018 Agrahayana 1940

PD 400T RPS

© **National Council of Educational
Research and Training, 2008**

₹ 60.00

Printed on 80 GSM paper with NCERT
watermark

Published at the Publication Division by the
Secretary, National Council of Educational
Research and Training, Sri Aurobindo Marg,
New Delhi 110 016 and printed at Ana Print
O Grafix Pvt. Ltd., 347-K, Udyog Kendra
Extn.-II, Sector Ecotech-III, Greater
Noida- 201306

ALL RIGHTS RESERVED

- ❑ No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.
- ❑ This book is sold subject to the condition that it shall not, by way of trade, be lent, re-sold, hired out or otherwise disposed of without the publisher's consent, in any form of binding or cover other than that in which it is published.
- ❑ The correct price of this publication is the price printed on this page. Any revised price indicated by a rubber stamp or by a sticker or by any other means is incorrect and should be unacceptable.

**OFFICES OF THE PUBLICATION
DIVISION, NCERT**

NCERT Campus
Sri Aurobindo Marg
New Delhi 110 016

Phone : 011-26562708

108, 100 Feet Road
Hosdakere Halli Extension
Banashankari III Stage
Bengaluru 560 085

Phone : 080-26725740

Navjivan Trust Building
P.O. Navjivan
Ahmedabad 380 014

Phone : 079-27541446

CWC Campus
Opp. Dhankal Bus Stop
Panihati
Kolkata 700 114

Phone : 033-25530454

CWC Complex
Maligaon
Guwahati 781 021

Phone : 0361-2674869

Publication Team

Head, Publication Division : *M. Siraj Anwar*

Chief Editor : *Shweta Uppal*

Chief Business Manager : *Gautam Ganguly*

Chief Production Officer : *Arun Chitkara*

Production Assistant : *Deepak jaiswal*

Cover : *Kavita Singh Kale*

Layout : *Preeti Rajwade*

Illustrations

*Deepa Balsavar, Kavita Singh Kale,
Nikita V. Bhagat, Poonam Athaly, Shaija Jain,
Joel Gill, Cartographic Designs*

FOREWORD

The National Curriculum Framework (NCF) 2005, recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

The success of this effort depends on what steps that school principals and teachers will take to encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that, given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. Treating the prescribed textbook as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge.

These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required number of teaching days are actually devoted to teaching. The methods used for teaching and evaluation will also determine how effective this textbook proves for making children's life at school a happy experience, rather than a source of stress or boredom. Syllabus designers have tried to address the problem of curricular burden by restructuring and reorienting knowledge at different stages with greater consideration for child psychology and the time available for teaching. The textbook attempts to enhance this endeavour by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups, and activities requiring hands-on experience.

The National Council of Educational Research and Training (NCERT) appreciates the hard work done by the textbook development committee responsible for this book. We wish to thank the Chairperson of the Advisory Committee for Textbooks at the primary level, Anita Rampal, *Professor*, CIE, Delhi University, Delhi, Chief Advisor, Farah Farooqi, *Reader*, Jamia Millia Islamia, New Delhi, for guiding the work of this committee. Several teachers contributed to the development of this textbook. We are grateful to their principals for making this possible. We are indebted to the institutions and organisations which have generously permitted us to draw upon their resources, material and personnel. We are especially grateful to the members of the National Monitoring Committee, appointed by the Department of Secondary and Higher Education, Ministry of Human Resource Development under the Chairpersonship of Professor Mrinal Miri and Professor G.P. Deshpande, for their valuable time and contribution.

As an organisation committed to systemic reform and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement.

New Delhi
30 November 2007

Director
National Council of Educational
Research and Training

A NOTE FOR THE TEACHERS AND PARENTS



The National Curriculum Framework (2005) views Environmental Studies (EVS) in Classes III to V as a subject which integrates the concepts and issues of science, social science and environment education. This subject is not there in Classes I and II, but the issues and concerns related to it are meant to be a part of Language and Mathematics.

This textbook is child centred, so that children get a lot of space to explore and are not compelled to learn by rote. There is no place for definitions and mere information in this book. The real challenge is to provide children with opportunities to express, learn by doing, ask questions and experiment. The language used in the book is not formal but that spoken by children. Children see a page of a book as a holistic 'visual text' and not separately as words and illustrations. Pages have been developed keeping this in mind. The textbook is not the only source of knowledge, but should support children to construct knowledge through all sources around them, such as people, their environment, newspapers, etc.

The chapters in this book contain real life incidents, everyday challenges and live contemporary issues – related to petrol, fuel, water, forests, protection of animals, pollution, etc. There are ample opportunities for children to freely debate, engage with and develop a sensitive understanding about these. The writing team views not just children but teachers too as people who construct knowledge and expand their experiences. Thus teachers also need to use this book as a teaching-learning resource.

The new syllabus consists of six themes – (1) Family and Friends, which consists of four subthemes – (1.1) Relationships, (1.2) Work and Play, (1.3) Animals and (1.4) Plants. Others are – (2) Food; (3) Water; (4) Shelter; (5) Travel and (6) Things We Make and Do.

What do we understand by a syllabus? The list of chapters in the textbook is often mistaken to be a syllabus. If we look at the NCERT syllabus, we find that an attempt has been made to develop a deep and inter-related understanding of each theme. Each theme begins with key questions in a language suitable for children. The whole syllabus is available on the NCERT website www.ncert.nic.in. Also try to get the printed version. On reading it you will enjoy teaching the subject with a deeper understanding.



Theme 2 – Food

The theme on 'Food' integrates all these – tasting, digesting, cooking, preserving techniques, farmers and hunger. **Chapter 3** does not contain information about the digestive system, but children's experiences have been used to build an understanding that the process of digestion begins in the mouth itself. This chapter also includes an amazing real story through which the world first came to know about the role of the stomach in digestion. Later in the chapter, through a description of the food habits of two children – one who doesn't get enough food to eat, and the other who takes only chips and cold drinks, the chapter tries to raise questions about what is 'good food'. Also, why do people who grow crops not get enough to eat?

In **chapter 4**, through the story of *mamidi tandra*, children understand the technique and skills involved in preservation and cooking. The story of a *bajra* seed (**chapter 19**) addresses some questions of the syllabus again, like how changes in farming are linked to the changes and difficulties in the lives of farmers. Later you will see how the theme (2) on Food is linked with the subtheme on Plants (1.4).

Questions	Key Concepts/ Issues	Suggested Resources	Suggested Activities
<i>When food gets spoilt</i>			
How do we know that food is spoilt? Which foods spoil, sooner than others? What can we do to prevent food from getting spoilt? What do we do to keep it fresh during travel? Why do we need to preserve food? Do you waste food?	Spoilage and wastage of food, Preservation of food, drying and pickling.	Sharing family experiences; interaction with a person involved with food production/ preservation.	Keep some Bread or, – other food for a few days – see how they spoil.
<i>Who produces the food we eat?</i>			
Do you know of different kinds of farmers? Do all farmers own land? How do farmers get the seeds they need to plant every year? What else besides seeds is required for a crop to grow?	On different types of farmers. Hardships faced in subsistence farming, including seasonal migration. Need for irrigation, fertilisers.	Farmers' narratives – could take an example from Punjab and Andhra Pradesh. Story of a child missing school because of seasonal migration. Visit to a farm.	Experiment to know the conditions suitable for germination; observations on a farm.
<i>Our mouth–tastes and even digests food!</i>			
How do we taste food? What happens in the mouth to the food we eat? Why do we give glucose to patients? What is glucose?	Tasting food; <i>chapati</i> / rice becomes sweeter on chewing; digestion begins in the mouth; glucose is a sugar.	Children's earlier experiences; samples of food items; story of someone on a glucose drip.	Tasting activity – action of saliva on rice/ <i>chapati</i> .

Theme – Family and Friends

Subtheme(1.1) – Relationships

Chapters 18 and **22** contain experiences of families who migrate in search of work. Children need help in understanding the difference between 'transfer' and 'displacement' so that they become sensitive towards problems faced by the urban and rural poor. **Chapter 21** focusses attention on how our identity is shaped by traits we inherit from our family and also the opportunities we get from our environment. The purpose of giving Mendel's story (the son of a poor farmer scared of examinations!) is not to focus on the principles of genetics but to be inspired by the process of scientific experimentation and his perseverance.

Subtheme (1.2) – Work and Play

In **chapter 15**, an interesting story by Dr. Zakir Hussain is used to develop an understanding of the process of breathing. Instead of dealing with the abstract concepts





of 'water cycle' and 'condensation' in a traditional manner, everyday experiences of children have been used to suggest how a mirror becomes hazy when we blow on it. **Chapter 16** stresses on the dignity of labour and that no work is clean or dirty. Also, why do certain communities continue to do scavenging through generations and do not get opportunities to make their own choice? **Chapter 17**, 'Across the Wall,' consists of a real story of a girls' basketball team, presented in their own words, on the issue of gender.

Subtheme (1.3) – Animals

Chapter 1 sensitises children to the amazing world of animals – how they hear and see, smell and sleep. They also have the right to live and are pained on not getting food. **Chapter 2**, by raising issues related to the life of snakecharmers, look at the close relationship between animals and humans beings.

Subtheme (1.4) – Plants

Chapter 5 has experiments on germination the idea of seed dispersal and shows how some plants have come from far off countries but today we cannot imagine our food without them. **Chapter 20** depicts the life of tribals, through the real story of Suryamani in Jharkhand and Jhoom farming of Mizoram. It also addresses some popular perceptions and biases about tribal communities.



Theme 3 – Water

Chapter 6 gives a glimpse of traditional sources and the techniques of water arrangements in Rajasthan. It uses a recent example of a village doing water management by taking inspiration from history. **Chapter 7** has experiments with water which are related to our everyday life. Real dialogues of children are used in **chapter 8** to bring out the relationship between stagnant water, mosquitoes, malaria, blood testing, etc.

Theme 4 – Shelter

Using Gaurav Jani's amazing journey to the Himalayas, **Chapter 13** shows variations in the types of shelters in one state, and also how food habits, living conditions, language and clothes differ. In **chapter 14** through narratives of calamities like a flood or earthquake, an understanding is developed about why people live in neighbourhoods and which agencies are responsible in such times.



Theme 5 – Travel

Some important questions of the syllabus related to this theme are:

- Where have you seen petrol and diesel being used?
- Why do you think some people like to climb high mountains or cover difficult terrains?
- Have you ever read or heard about someone's experiences of space travel?
- Have you ever visited a historical monument? What do you think about the design of the building and other arrangements in it?

In **Chapter 9**, a teacher's mountaineering adventure raises the question as to why people take risks. It also gives a feel of high, snow covered and difficult mountain terrains, without giving direct information about facts of geography! **Chapter 10** uses a historical monument to introduce children to the techniques, designs, uses of metals, water arrangements, etc. of earlier times. An attempt is made to understand how 'war and peace', then and now, are a part of social and political life. **Chapter 11** engages with the challenging concepts of the



'shape of the earth' and 'gravitation' using children's intuitive ideas. **Chapter 12** presents debates around the burning issue of why petrol and diesel are limited. The theme 'Travel' is not limited to 'transport' but is presented in a wider and more interesting perspective.

Theme 6: Things We Make and Do

This theme is integrated with all the other themes and emphasises processes and techniques. Wherever there are experiments in a chapter or things to make and do, children need to be given opportunities and space to engage with them.



What will Children Learn in EVS?

In this book there is a separate section 'What we have learnt' at the end of each chapter. These questions suggest how children's learning can be assessed after doing a chapter and also in the examinations. Answers should not be assessed in terms of only 'right/wrong'. Children's ideas, observation reports, expression of their experiences, process of experiments, etc. are all opportunities for qualitatively assessing children's learning. This list of indicators for assessment in EVS can be used to record how children are learning.

Indicators for Assessment in EVS

1. Observation and Recording – Reporting, narrating and drawing; picture-reading, making pictures, tables and maps.
2. Discussion – Listening, talking, expressing opinions, finding out from other people.
3. Expression – Drawing, body movements, creative writing, sculpting, etc.
4. Explanation – Reasoning, making logical connections.
5. Classification – Categorising, grouping, contrasting and comparing.
6. Questioning – Expressing curiosity, critical thinking, developing good questions.
7. Analysis – Predicting, making hypotheses and inferences
8. Experimentation – Improvisation, making things and doing experiments.
9. Concern for Justice and Equality – Sensitivity towards the disadvantaged and differently abled.
10. Cooperation – Taking responsibility and initiative, sharing and working together.

Based on these indicators, teachers can observe 3-5 children everyday and record their comments in order to better understand children's abilities and to encourage them accordingly. For better understanding on assessment practices and procedures in EVS, NCERT has developed a sourcebook on this area for primary stage. It will be useful if you go through this document as well.

The following are applicable to all the maps of India used in this book:

© Government of India, Copyright 2006

1. The responsibility for the correctness of internal details rests with the publisher.
2. The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
3. The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh.
4. The interstate boundaries amongst Arunachal Pradesh, Assam and Meghalaya shown on this map are as interpreted from the "North-Eastern Areas (Reorganisation) Act.1971," but have yet to be verified.
5. The external boundaries and coastlines of India agree with the Record/Master Copy certified by Survey of India.
6. The state boundaries between Uttarakhand & Uttar Pradesh, Bihar & Jharkhand and Chhattisgarh & Madhya Pradesh have not been verified by the Governments concerned.
7. The spellings of names in this map, have been taken from various sources.

TEXTBOOK DEVELOPMENT COMMITTEE

CHAIRPERSON, ADVISORY COMMITTEE FOR TEXTBOOKS AT THE PRIMARY LEVEL

Anita Rampal, *Professor*, Department of Education (CIE), University of Delhi, Delhi

CHIEF ADVISOR

Farah Farooqi, *Reader*, Faculty of Education, Jamia Millia Islamia, New Delhi

MEMBERS

Aparna Joshi, *Lecturer*, Gargi College, Delhi University, New Delhi

Mamata Pandya, *Programme Director*, Centre for Environment Education, Ahmedabad

Poonam Mongia, *Assistant Teacher*, Sarvodaya Kanya Vidyalaya, Vikas Puri, New Delhi

Reena Ahuja, *Research Student* (Education), Delhi University, Delhi.

Sangeeta Arora, *Primary Teacher*, Kendriya Vidyalaya, Shalimar Bagh, Delhi

Simantini Dhuru, *Director*, Avehi Abacus Project, Mumbai

Smriti Sharma, *Lecturer*, Lady Shri Ram College for Women, Delhi University, Delhi.

Swati Verma, *Teacher*, Kendriya Vidyalaya, Bareilly, Uttar Pradesh

MEMBER-COORDINATOR

Manju Jain, *Professor*, Department of Elementary Education, NCERT, New Delhi.



ACKNOWLEDGEMENTS

The NCERT thanks the authors, poets and organisations for their cooperation in developing this book and also for permitting the use of their work –

- Lesson – 3 ‘From Tasting to Digesting’ – A poem written by Rajesh Utsahi and a story written by Anita Rampal, courtesy *Chakmak*. P. Sainath, Mumbai (Photo-Kalahandi). Phool Chandra Jain, Teekamgarh, (suggestions for language)
- Lesson – 4 ‘Mangoes Round the Year’ – Rajeshwari Namgiri, C.E.E., Ahmedabad (Recipe of *Mamidi Tandra*).
- Lesson – 5 ‘Seeds and Seeds’ – A poem written by Rajesh Utsahi, courtesy *Chakmak*.
- Lesson – 6 ‘Every Drop Counts’ – *Aaj Bhi Khare Hain Talab*, a book written by Anupam Mishra and published by Gandhi Shanti Pratishthan, Delhi (reference material). *Chaar Gaon Ki Katha*, published by Tarun Bharat Sangh (reference and photo of Dadki Mai). *India – Al Biruni*, edited by Qeyamauddin Ahmad and published by National Book Trust (reference material). People Science Institute, Dehradun (Jal Sanskriti Project – photo and information). Rashmi Paliwal, Eklavya, Hoshangabad (reference material).
- Lesson – 7 ‘Experiments with Water’ – A poem written by Shishir Shobhan Asthana, courtesy *Chakmak*.
- Lesson – 10 ‘Walls Tell Stories’ – Special thanks to these resource persons without whose cooperation this chapter could not have been developed – Professor Neeladri Bhattacharya (Jawaharlal Nehru University, New Delhi), Professor Narayani Gupta (INTACH, New Delhi), Professor Monica Juneja (Emory University, Atlanta), Professor Irfan Habib (Aligarh Muslim University), Professor Azizuddin (Jamia Millia Islamia); Geeti Sen’s book *Paintings from the Akbarnama*, published by Lustre press and Rupa (miniature painting). Rajeev Singh (photographs of Golconda). S.P. Shorey, (Chief Town Planner, Hyderabad, Map of Golconda).
- Lesson – 11 ‘Sunita in Space’ – A poem written by Anware Islam, courtesy *Chakmak*. Kendriya Vidyalaya, NCERT (photograph – page 100). NASA (part of Sunita William’s interview and photographs).
- Lesson – 12 ‘What if it Finishes...?’ – TERI (reference material), Petroleum Conservation Research Association (reference - poster).
- Lesson – 13 ‘A Shelter so High!’ – Gaurav Jani’s documentary film, *Riding Solo to the Top of the World*, Dirt Track Productions (excerpts from this film). Nighat Pandit, Srinagar (photographs and information on Jammu & Kashmir). M.K. Raina, Delhi and INTACH, Jammu & Kashmir (reference material).

- Lesson – 15 'Blow Hot, Blow Cold' – A story written by Dr. Zakir Husain 'Blowing hot, Blowing cold,' published by Young Zubaan and Pratham Books.
- Lesson – 16 'Who will do this Work?' – Children of a Bombay Municipal Corporation School – Priya Narbahadur Kunwar, Sandeep Shivprasad Sharma, Manisha Madhavdas Dharuk, Sonu Shivalal Pasi and Mehejabeen M. Ansari – courtesy Avehi Abacus (drawings for page – 150). *Sant – Charan – Raja Sevitam Sahaja*, a book written by Narayan Bhai Desai in Gujarati (excerpts from this book). *India Untouched*, a documentary film by Stalin K., Drishti and Navasarjan Production (photos and excerpts of interviews from this film).
- Lesson – 17 'Across the Wall' – This chapter is based on interviews of a girls' team of Nagapada Basketball Association, Mumbai and their coach Noor Khan, Afzal Khan, Fazal Khan, Kutubuddin Sheikh, Nagapada Neighbourhood House (interview).
- Lesson – 20 'Whose Forests?' – 'Girl Stars' a project of 'Going to school,' supported by UNICEF, (true story documented by the organisation). *The Last Frontier – People and Forests in Mizoram*, a book written by Daman Singh and published by TERI (reference material).

Published material of Avehi Abacus, Mumbai and Centre for Environment Education, Ahmedabad (in the form of reference material).

The heads of the following organisations and institutions who contributed to this book by deputing their experts. They are - Delhi University, Delhi; Jamia Millia Islamia, New Delhi; Lady Shri Ram College; Gargi College; Kendriya Vidyalaya, Shalimar Bagh, Delhi; Kendriya Vidyalaya, Bareilly, Uttar Pradesh.; Sarvodaya Vidyalaya, Janakpuri, New Delhi.

The first draft of the English version was prepared by Mamta Pandaya, CEE, Ahmedabad. Later other team members of the EVS group worked on it. The final editing was done by Professor Anita Rampal. The poems given in the book were translated by Anupa Lal.

We thank Deepa Balsawar for coordinating the artwork and lay out of this book with care and responsibility.

We are specially grateful to K.K. Vashishtha, *Professor and Head*, Department of Elementary Education, NCERT who has extended every possible help in developing this book. The contribution of Shakamber Dutt, *Incharge Computer Station*, DEE; Vijay Kaushal and Inder Kumar, *DTP Operators*; Shashi Devi, *Proof Reader* is commendable in shaping the book. The efforts of the Publication Department, NCERT in bringing out this publication are also appreciated.

NCERT is grateful to all the persons for devoting their valuable time and cooperation directly or indirectly in the process of developing this book.

CONTENTS

<i>Foreword</i>	iii
<i>A Note for the Teachers and Parents</i>	v



1. Super Senses	1
-----------------	---

2. A Snake Charmer's Story	15
----------------------------	----

3. From Tasting to Digesting	22
------------------------------	----

4. Mangoes Round the Year	35
---------------------------	----

5. Seeds and Seeds	42
--------------------	----

6. Every Drop Counts	51
----------------------	----

7. Experiments with Water	60
---------------------------	----

8. A Treat for Mosquitoes	67
---------------------------	----

9. Up You Go!	76
---------------	----

10. Walls Tell Stories	87
------------------------	----

11. Sunita in Space	99
---------------------	----

12. What if it Finishes ...?	110
------------------------------	-----

13. A Shelter so High!	120
------------------------	-----





14. When the Earth Shook! 131



15. Blow Hot, Blow Cold 139



16. Who will do this Work? 147

17. Across the Wall 154



18. No Place for Us? 165



19. A Seed tells a Farmer's Story 174

20. Whose Forests? 182



21. Like Father, Like Daughter 192



22. On the Move Again 200

